

U.S.S.N. 10/511,121

International Application Filing Date: April 15, 2003

Section 371(c) Date: March 28, 2005

AMENDMENT AND RESPONSE TO ELECTION OF SPECIES REQUIREMENT

Amendment

In the Claims

1. (Currently amended) A method of lubricating a charged surface, comprising administering a lubricating composition to the surface,
wherein the lubricating composition comprises a graft copolymer with a polyionic backbone and non-interactive side chains and an aqueous medium, and wherein the resulting lubricated surface has a lower friction coefficient between the lubricated surface and a second sliding surface than the coefficient of friction between the charged surface and the second sliding surface in the absence of the lubricating composition.
2. (Original) The method of claim 1, wherein the polyionic backbone is poly(cationic).
3. (Currently amended) The method of claim 2, wherein the polyionic backbone is selected from the group consisting of nonpeptide polyamines, polyamino acids and polysaccharides having net positive charge at neutral pH.
4. (Original) The method of claim 3, wherein the polyionic backbone is poly-L-lysine.
5. (Original) The method of claim 1, wherein the polyionic backbone is poly(anionic).
6. (Original) The method of claim 5, wherein the polyionic backbone is a polyamino acid having net negative charge at neutral pH.

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7. (Original) The method of claim 6, wherein the polyamino acid is poly(L-glutamic acid).

8. (Original) The method of claim 1, wherein the non-interactive side chains are poly(ethylene glycol) chains.

9. (Original) The method of claim 8, wherein the poly(ethylene glycol) chains are modified to contain a functional group at the free end.

10. (Original) The method of claim 9, wherein the copolymer further comprises biotin, wherein the biotin is attached to at least one poly(ethylene glycol) chain.

11. (Original) The method of claim 1, wherein the charged surface is a metal oxide.

12. (Currently amended) A lubricated surface, comprising a charged surface and lubricating composition, wherein the lubricating composition comprises a graft copolymer with a polyionic backbone and non-interactive side chains and an aqueous medium, and wherein the lubricated surface has a lower friction coefficient between the lubricated surface and a second sliding surface than the coefficient of friction between the charged surface and the second sliding surface in the absence of the lubricating composition.

13. (Currently amended) The lubricated surface of claim 12, wherein the lubricating composition graft copolymer is PLL-g-PEG.

14. (Currently amended) The lubricated surface of claim 12, wherein the charged surface is a metal oxide.

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15. (Currently amended) A method of lubricating a charged surface comprising ~~on its~~ surface a graft copolymer with a polyionic backbone and non-interactive side chains and an aqueous medium, comprising providing ~~an aqueous solution~~ a lubricating composition to the devicee surface, wherein the lubricating composition comprises a graft copolymer with a polyionic backbone and non-interactive side chains and an aqueous medium, and wherein the lubricated surface has a lower friction coefficient between the lubricated surface and a second sliding surface than the coefficient of friction between the charged surface and the second sliding surface in the absence of the lubricating composition.

16. (New) The method of claim 1, wherein the charged surface is oxidized silicon.

17. (New) The lubricated surface of claim 12, wherein the charged surface is oxidized silicon.

18. (New) The lubricated surface of claim 12, wherein the polyionic backbone is selected from the group consisting of nonpeptide polyamines, polyamino acids and polysaccharides having net positive charge at neutral pH.

19. (New) The method of claim 15, wherein the charged surface is oxidized silicon.

20. (New) The method of claim 15, wherein the polyionic backbone is selected from the group consisting of nonpeptide polyamines, polyamino acids and polysaccharides having net positive charge at neutral pH.